AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.   (Currently Amended) A virtual protection method for a fiber path, comprising:

dividing ~~the~~an optical port into multiple minimum protection units;

dividing the minimum protection units of more than one protection channel in each optical port into different logic-systems to form more than one logic-system;

each logic node in each logic-system working in one of the four working modes: normal working mode, passing working mode, bridging working mode and switching working mode; and

when ~~the~~ protection is needed, switching each logic node from normal working mode to one of ~~each logic node to~~ the other three working modes~~.~~, wherein

in the passing working mode, the input protection bus of a logic node is connected to the output protection bus of the logic node;

in the bridging working mode, the input protection bus of a logic node is connected to the output working bus of the logic node; and

in the switching working mode, the input working bus of a logic node is connected to the output protection bus of the logic node.

2.   (Original) The method according to claim 1, wherein the switching is a multiplex section protection switching, or a sub-network connection protection switching, or a channel protection switching.

3.   (Previously Presented) The method according to claim 2, wherein the multiplex section protection switching comprises the steps of:

creating logic-systems for protection switching;

obtaining four sets of pages: working pages, switching pages, bridging pages and passing pages by analyzing current configuration; and

after determining whether a node is a passing node, a bridging node or a switching node, sending down a passing page to the node if the node is a passing node, sending down a bridging page to the node if the node is a bridging node or sending down a switching page to the node if the node is a switching node.

4.   (Cancelled).

5.   (Previously Presented) The method according to claim 1, wherein the minimum protection unit is a VC4 or a VC3; dividing the minimum protection units of more than one protection channel in each optical port into different logic-systems comprises mapping one or more than one of multiple VC4s or VC3s into different logic-systems to form more than one logic-system.

6.   (Original) The method according to claim 1, wherein when implementing protection switching in a certain logic-system, only services of a logic-system satisfying the current logic-system protection switching trigger condition participate in the protection switching.

7. (Previously Presented) The method according to claim 1, further comprising:

adjusting and crossing services which are sent to the same minimum protection unit from different minimum protection units by a time-division cross-connect unit in the transmission system.

8. (Currently Amended) A virtual protection device for a fiber path, comprising:

a component configured to

divide ~~the~~an optical port into multiple minimum protection ~~unites~~units; and

divide the minimum protection units of more than one protection channel in each optical port into different logic-systems to form more than one logic-system;

a paging analyzer configured to analyze configuration of the logic-systems, creating corresponding working pages and storing the working pages in the switching controller said below;

a switching controller configured to send down corresponding working pages to the cross-connection panel said below according to switching state; and

a cross-connection panel configured to ~~perform~~connect the input protection bus ~~connection appropriately according~~ to the ~~sent down~~output protection bus if a passing working page is sent down; connect the input protection bus to the output working bus if a bridging working page is sent down; connect the input working bus to the output protection bus if a switching working page is sent down.

9.   (Original) The device according to claim 8, wherein the working pages are normal working pages, or passing pages, or bridging pages, or switching pages.

10.   (Original) The device according to claim 8, wherein the bus connection is the connection of input and output working buses of the current node, or that of input and output protection buses of the current node, or that of input protection bus and output working bus of the current node, or that of input working bus and output protection bus of the current node.

11.   (Original) The device according to claim 9, wherein the bus connection is the connection of input and output working buses of the current node, or that of input and output protection buses of the current node, or that of input protection bus and output working bus of the current node, or that of input working bus and output protection bus of the current node.